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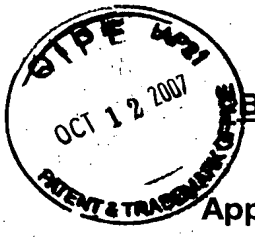

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants	:	KEVIN LLOYD GRIMES ET AL.
Serial No.	:	09/427,388
Filed	:	October 26, 1999
For	:	AN ADAPTIVE TRANSPORT PROTOCOL DECODER
Examiner	:	Kevin C. Harper
Art Unit	:	2666

APPLICANTS' SUBSTITUTE AMENDED APPEAL BRIEF

Mail Stop: Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

May It Please The Honorable Board:

Applicants appeal the rejection of Claims 1 and 3 - 12 of the above-identified application in the Office Action mailed April 3, 2007, as supplemented by the Notice of Non-Compliant Appeal Brief mailed September 14, 2007. Applicants request that the rejection of all claims be reversed.

This Substitute Brief is submitted to replace the earlier Brief on Appeal in response to a requirement by the Examiner in the latest Action that further explanation be provided regarding the subject matter of claims 3 and 4-9 for which separate arguments for patentability have been made in the Brief.

The $ 500.00 fee for filing an Appeal Brief has previously been charged to Deposit Account No. 07-0832. Please charge any additional fee or credit any overpayment to the above-identified Deposit Account.

Applicants do not request an oral hearing.

REAL PARTY IN INTEREST

The real party in interest, the Assignee, is:

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RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF THE CLAIMS

Claims 1 and 3 - 12 are rejected. Claim 2 has been canceled.

Claims 1 and 3 - 12 are appealed.

STATUS OF AMENDMENTS

All amendments were entered and are reflected in the claims included in Appendix I.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Four independent claims (each of claims 1, 10, 11 and 12) are presented. Claims 3 – 9 are all dependent on claim 1 and claims 4 – 9 are further dependent on particular claims between claim 3 and the claim in question.

There is no "means plus function" or "step plus function" language recited in any of the claims.

Each of the four independent claims 1, 10, 11 and 12 has the same preamble and the same first three elements as set forth below:

"An adaptive transport decoder, comprising:

'a source of a first stream of packets, each including a payload, and having a first transport protocol;

'a source of a second stream of packets, each including a payload, and having a second transport protocol, wherein said second transport protocol is different than said first transport protocol;

'a protocol decoder, coupled to the first and second packet stream sources, for extracting the respective payloads from the packets from a selected one of the first and second packet stream sources ;".

The foregoing elements of each of the four independent claims are shown and described in the application as follows.

In Fig. 1 of the application, an adaptive transport decoder has at least two sources of streams of packets 12 and 14 arranged according to respectively different transport protocols (data formats) (page 4, lines 1 – 12). Examples of two different transport protocols are illustrated schematically in Fig. 2 at "A" and "B" of the drawing (page 5, lines 1 – 6). In each of the illustrated transport protocols, each packet includes a "payload" (Fig. 2 and page 5, lines 13 – 16).

An example of a first packet stream source 12 is described (page 4, lines 6 – 8) as providing packets having a DSS (Direct Satellite System) transport packet protocol with a payload of 127 bytes in each payload (page 11, line 23). An example of a second packet stream source 14 is described (page 4, lines 11 – 12) as providing packets having a different ATSC (American Television Systems Committee) transport packet protocol with a payload of 184 bytes in each transport packet (page 11, lines 28 – 29). The different numbers of bytes in the payloads, along with other differences in byte sequences, require that different decoder configurations be provided to decode each different protocol.

Applicant's solution is to provide an adaptive protocol decoder 30 (Fig. 1) coupled to the first and second packet stream sources 10, 12

which selects and extracts the payloads from either one of the packet stream sources (page 4, lines 18 – 20).

Each of the four independent claims 1, 10, 11 and 12 concludes with different fourth and/or further claim elements.

In claim 1, the fourth claim element (reference characters added) is:

"a selector (20), having respective input terminals coupled to the first (12) and second (14) packet strearn sources, and an output terminal coupled to the protocol decoder (30), and responsive to a select signal for selectively coupling either one of the first (12) and second (14) packet stream sources to the protocol decoder (30)".

This claim element (selector 20) is shown in Fig. 1 and is described at page 4, lines 14 – 22, page 6, lines 8 - 1, and page 14, beginning at line 17 of the specification.

In independent claim 10, a fourth claim element is identical to the fourth element of claim 1 set forth above and, in addition, claim 10 includes a fifth element (reference characters added) which reads:

"said protocol decoder (30) further comprises a processor (Fig. 3) responsive to first, second and third control programs, the third control program is responsive to the select signal to switch to the first control program when the first packet stream source is coupled to the protocol decoder and to switch to the second control program when the second packet stream source is coupled to the protocol decoder".

As shown in Fig. 3 and Fig. 4 and described beginning at page 9, line 26, the operation of the adaptive transport protocol decoder 30 is invoked by an interrupt request (INT REQ) signal. The interrupt request signal is supplied to the protocol decoder 30 via the selector 20. The interrupt request (the claimed "third control program") causes a microprocessor within controller 32 of decoder 30 to interrupt its processing and to begin processing either a packet (interrupt) handler 104 or 104' (the claimed "first" and "second control program"). As stated beginning at page 11, line 15, the interrupt

handler 104 invokes a particular appropriate one of several driver routines 106, 106' necessary to process either, for example, DSS transport control packets or ATSC transport control packets, respectively.

In independent claim 11, a fourth claim element (reference characters added) comprises:

"a payload processor (40) coupled to the protocol decoder (30) for processing the respective payloads extracted from the packets from the selected packet stream source (12, 14)".

At page 4, beginning at line 17, the adaptive transport protocol decoder is said to extract the payload data from the packets and the extracted payload data is supplied to the payload processor 40. Payload processor 40, in turn, processes the payload data to generate signals corresponding to the data and supplies those signals to a user interface 50 (see Fig. 1).

In independent claim 12, following the third element, the claim reads (reference characters added):

"a selector (20) responsive to a select signal for selectively coupling either one of said first (12) and second (14) packet stream sources to the protocol decoder (30); and

'each packet in the first and second packet streams further comprises a header containing information related to the payload (Fig. 2);

'the protocol decoder (30) comprises a register for storing information from a header of a received packet; and

'the protocol decoder accesses the register to obtain the information".

At page 7, beginning at line 19, a "PID" (packet identifier) is described as being contained in the header of each packet to identify the data stream to which the packet belongs. A service detector 31 is described as extracting the PID from the header location and the extracted PID is "stored in a register within the adaptive transport protocol decoder 30" (page 7, line 27).

As stated at page 14, beginning at line 9, a PID is extracted from the header of a packet and is placed in the PID register. The contents of

that PID register are then compared to a table of PID's which identify data streams being received. Once the PID has been extracted from the header of a packet and is placed in the register, the information is available to be shared among all the transport packet protocol control programs.

Dependent claim 3, which is dependent upon claim 1, includes (parenthetical material and reference numerals added):

"wherein the protocol decoder (30) comprises a processor (within controller 32), responsive to a first control program (104) for processing the packets (A) from the first packet stream source (12) to extract the respective payloads, a second control program (104') for processing the packets (B) from the second packet stream source (14) to extract the respective payloads, and a third control program (INT REQ) for switching between the first control program and the second control program".

As shown in Fig. 3 and Fig. 4 and described beginning at page 9, line 26, the operation of the adaptive transport protocol decoder 30 is invoked by an interrupt request (INT REQ) signal. The interrupt request signal is supplied to the protocol decoder 30 via the selector 20. The interrupt request signal is applied to an interrupt pointer (PNTR(0)) in an interrupt vector 102 and causes a microprocessor to interrupt its processing and to begin processing appropriate packets via a packet (interrupt) handler 104 (the claimed "first control program") or via a packet interrupt handler 104' (the claimed "second control program"). As stated beginning at page 11, line 15, the interrupt handler 104 invokes particular driver routines 106, while the interrupt handler invokes driver routines 106', necessary to process either, for example, DSS transport control packets or ATSC transport control packets, respectively.

Dependent claim 4, which is dependent on claim 3, includes (parenthetical material and reference numerals added):

"the processor includes a memory (34, 34') for storing the first (104 - DSS), second (104' - ATSC) and third programs (INT REQ); and each of the first and second control programs comprises:

'a packet handler (104, 104'); executed in response to each received packet;

'a plurality of interrupt drivers (106, 106'), stored in the memory at respective locations, called by software interrupt;

'an interrupt vector (102, 102') stored at a fixed, predetermined location in memory, including a plurality of entries, each containing a pointer (PNTR(1), PNTR(2)) to a respective location (DVR1, DVR2 & DVR1', DVR2'), of an interrupt driver.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(1) Whether the apparatus claimed in independent Claims 1 and 10 – 12, as well as dependent claim 3, is unpatentable under 35 U.S.C. §103(a) over Cuccia (U.S. Patent 6,157,673) in view of Eyer et al. (U.S. Patent 5,982,411) and "applicant's admitted prior art" ("AAPA"); and

(2) Whether the apparatus claimed in dependent Claims 4 – 9 is unpatentable under 35 U.S.C. §103(a) over Cuccia (6,157,673) in view of Eyer et al. (5,982,411) and "applicant's admitted prior art" ("AAPA") and further in view of Yu (U.S. Patent 5,410,709).

ARGUMENT

GENERAL STATEMENT OF PROPER BASIS FOR REJECTIONS UNDER 35 U.S.C.§ 103(a)

To establish a prima facie case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings of a plurality of references. Third, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's own disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

The Federal Circuit Court of Appeals has made it clear that patent examiners cannot rely on their own knowledge as a basis for rejecting patent applications without the citation of specific evidence (references) having a teaching, suggestion or motivation to modify a reference or to combine two or more references . See *In re Lee*, 277 F.3d 1338, 1345 (Fed. Cir. 2002).

In a long line of cases, the Federal Circuit has specified that obviousness can be shown only when prior art of record provides a "suggestion or incentive", *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577 (Fed. Cir. 1984), "teaching, suggestion or incentive", *In re Geiger*, 815 F.2d 686, 688 Fed. Cir. 1987), "reason, suggestion or motivation", *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992), or "teaching, suggestion or motivation", *In re Raynes*, 7 F.3d 1037, 1039 (Fed. Cir. 1993) to combine existing elements from different sources.

This firm rule, that an Examiner cannot reject claims as obvious unless he can point to specific references suggesting elements could be combined or modified, has been repeated many times by the Federal Circuit. See *In re Dembiczak*, 175 F.3d 994, 999; *Ruiz v. A. B. Chance Co.*, 234 F. 3d 654,665 (Fed. Cir. 2000); *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

In the recently decided case of *KSR International Co. v. Teleflex, Inc. et al., 550 U. S. _____ (2007)*, decided April 30, 2007, (see Section "B", pages 14 – 15 of the published decision), the U. S. Supreme Court discussed this requirement of "teaching, suggestion or motivation" and stated:

"When it first established the requirement of demonstrating a teaching, suggestion or motivation to combine known elements in order to show that the combination is obvious, the Court of Customs and Patent Appeals captured a helpful insight. See *Application of Bergel,* 292 F 2d 955, 956 – 957 (1961). ----

---In the years since the Court of Customs and Patent Appeals set forth the essence of the TSM test, the Court of Appeals no doubt has applied the test in accord with these principles in many cases. There is no necessary inconsistency between the idea underlying the TSM test and the *Graham* analysis".

This latter reference is to the "framework for applying the statutory language of §103" set out in *Graham v. John Deere Co. of Kansas City,* 383 U. S. 1 (1966).

It is respectfully submitted that the Examiner is required to find each and every element of the claims in citable references and, most importantly, to find such references which teach, suggest and/or motivate the person of ordinary skill to combine such elements in the manner set forth in the rejected claims. Absent the elements or the showing of a teaching, suggestion or motivation to combine such elements, an obviousness rejection cannot stand.

A statement that modifications of the prior art to meet the claimed invention would have been "within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood,* 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993); see also *In re Kotzab,* 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000).

The examiner bears the burden of establishing a prima facie case of obviousness and "can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988, emphasis added). To support a conclusion that a claimed combination is obvious, either: (a) the references must expressly or impliedly suggest the claimed combination to one of ordinary skill in the art, or (b) the examiner must present a convincing line of reasoning as to why a person of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Inter. 1985).

The § 103(a) Rejections of Claims 1, 3 and 10 – 12 Are Traversed

The Final Rejection does not make out a prima facie case of obviousness with respect to the independent apparatus Claims 1 and 10 – 12 or the dependent apparatus claim 3.

A) The Disclosure of Cuccia

Cuccia is concerned with processing one transport stream from among a number of transport streams, where all of those streams use the same MPEG-2 transport protocol. Different ones of Cuccia's transport streams contain different sets of program information (i.e. different "channels") but all use the MPEG-2 transport protocol (data format).

Information representing several different "channels" typically is transmitted in an interleaved fashion in each separate transport stream. Cuccia is concerned with the problem of delay in processing signals which are encountered when a viewer wishes to change to a channel which is not contained in the same transport stream as the channel being viewed at that time. Such a change of channel requires recovering infrequently transmitted program specific information (PSI) tables from one or more different transport streams before any decoding (new channel reception) can be accomplished (Cuccia, col. 1, line 45 et seq.).

Cuccia states he solves this processing delay problem by providing a "pre-decoder" to access all available transport stream sources, which use the same transport protocol handled by Cuccia's decoder, in order to extract and store PSI information from all of those transport stream sources. In this system, when a channel change is called for, Cuccia is able to search more rapidly through just the PSI information in his "pre-decoder" to identify the appropriate transport stream source which contains the desired new channel information (col. 1, last lines).

The Examiner acknowledges that "However, Cuccia does not disclose that the packets have different first and second transport paths" (Final Rejection, paragraph 9). Throughout the rejection, the Examiner describes the cited references in terms of "transport paths", even though such "transport paths" themselves are not relevant to the present invention. More

to the point, the Examiner concedes that Cuccia does not disclose that the packets of his different transport streams have different "transport paths" as described by Eyer et al (see below) and, still further, Cuccia's different transport streams do not have different first and second transport protocols, as required by each of the claims in issue.

Furthermore, Cuccia does not mention or suggest an "adaptive" transport decoder which can decode two or more streams of packets having different transport protocols. Cuccia's decoder only processes streams arranged according to the MPEG-2 protocol and the decoder is not "adaptive". The Examiner attempts to negate the meaning of "adaptive" by stating that "the protocol decoder in Cuccia adaptively selects a desired program stream" (Final Rejection, page 2, paragraph 1). However, "adaptive" means a decoder which is changeable to process different transport protocols and Cuccia's protocol decoder does not meet that requirement since it only decodes the MPEG-2 transport protocol. The Examiner asserts he "has given the term "adaptive" a broad and reasonable interpretation" but does not state what that interpretation is.

Referring to Fig. 3 of Cuccia, each transport packet P in each of the MPEG- 2 transport streams is based on the same protocol - 188 bytes in total length - comprising a packet header PH of four bytes and a packet payload PP of 184 bytes (Fig. 3 and col. 3, lines 27 – 30). There is no disclosure anywhere in Cuccia of any stream of packets having any other transport protocol (compare the two different transport protocols of Figs. 2A and 2B of the present application with the single protocol of Fig. 3 of Cuccia).

Cuccia does not disclose or even contemplate any apparatus for handling streams of packets having different transport protocols for any purpose and never mentions different transport protocols.

It is therefore clear (and acknowledged by the Examiner) that Cuccia does not disclose or suggest each and every limitation of the independent claims 1 and 10 – 12 of this application and specifically fails to disclose the claim elements above: i. e., "second stream of packets ------ having a second transport protocol ---- wherein said second transport protocol is different than said first transport protocol ". Furthermore, Cuccia does not

disclose or suggest an "adaptive transport decoder" as set forth in all of the claims.

B. The Disclosure of Eyer et al.

The Examiner has relied on Eyer et al. to fill the gap left by Cuccia as set forth in the paragraph immediately above. But Eyer et al. does not fill the gap.

The Examiner contends (Final Rejection, page 5, paragraph 9):

> "Eyer discloses a source of a first stream of packets --- having a first path ---- and a source of a second stream of packets --- having a second path---. A protocol decoder--- extracts the respective payloads from the packets. --- Further, regarding claim 3, the protocol decoder is a processor --- responsive to control programs for extracting payloads from respective transport streams. The protocol decoder inherently has a third control program for switching between the first control program and the second control program. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to receive and decode transport streams of different transport paths in the inventions disclosed in Cuccia in order to conveniently view television programs transmitted through different networks" (emphasis added).

But even if the conclusion in the last emphasized statement is correct, decoding "transport streams of different transport paths" is not what is claimed in the rejected claims (see each independent claim "wherein said second transport protocol is different than said first transport protocol"). Neither Cuccia nor Eyer ever states that their different transport paths correspond to different transport protocols. It should therefore be apparent that Eyer does not fill the gap between what is claimed and what Cuccia discloses. In fact, the Examiner goes on to state:

> "Further, Cuccia in view of Eyer does not specifically disclose that the packets of different transport paths have different transport protocols" (Final Rejection, page 5, paragraph 10, emphasis added).

In fact, Eyer et al. never suggests or states that any of the "digital transport stream(s)" (col. 3, line 47) processed by his system have different transport protocols.

Eyer et al. describes his system at col. 4, line 23 as follows:

> "A method and apparatus are presented for allowing a viewer to easily navigate television programs which are grouped according to a common service provider or other grouping criteria by depressing the "channel up" or "channel down" button on a hand held remote control or the like, thereby allowing a viewer to successively select the grouped channels regardless of the broadcast signal, transmission path and/or broadcast address in which the channel is carried." (emphasis added).

Eyer et al. explains his terminology "transmission path" at col. 3, line 31 as follows:

> "The transmission paths may include a direct broadcast satellite path, a cable distribution path, a terrestrial broadcast path and a multi-point microwave distribution system path, for example.".

Thus, Eyer et al. is silent about different digital transport protocols.

Eyer et al. refers to a "broadcast address" (col. 3, line 15) as being different for each channel. Eyer et al. states:

> " The primary channel programming service is carried in a corresponding "broadcast address" which, for an analog signal may define a frequency spectrum and, for a digital signal, may define a transport stream including PID information as well as a frequency at which the transport stream is provided".

That is simply channel identification information. Eyer et al. further states at col. 3, line 45:

> "PID data is provided to distinguish the programming services from one another in a packetized multiplexed digital transport stream".

As stated above, Eyer is silent about different digital transport protocols and repeatedly states that it is "broadcast address information (e. g. frequency and/or PID)" (col. 8, line 36; col. 7, line 66; see also col. 10, lines 29 – 51), not any "transport protocol", that is different for each channel in his system.

Thus, Eyer et al. does not provide any disclosure or suggestion of a significant claim element acknowledged to be missing from Cuccia.

It is therefore clear and has been acknowledged by the Examiner (see above) that neither Cuccia nor Eyer et al. renders the independent claims obvious.

It is also clear and is acknowledged by the Examiner that no combination of Cuccia and Eyer et al. renders the language of the independent claims obvious. This is because neither Cuccia nor Eyer et al. discloses two or more streams having different transport protocols or any combination of elements for processing two or more transport streams having different transport protocols.

To overcome this deficiency in the cited references, the Examiner attempts to rely upon Applicant's recognition of a problem which was neither disclosed nor solved in the cited references but which existed at the time the present invention was made. The Examiner characterizes the description in the present application of this problem as "Applicant's admitted prior art" (hereafter, "AAPA"). The Examiner further concludes that the AAPA is combinable with combined portions of the disclosures of Cuccia and Eyer et al. to further modify those combined disclosures so as to make out a *prima facie* case of obviousness of independent claims 1 and 10 – 12.

What is the AAPA that the Examiner relies upon and what is the Examiner's basis for using this information to further modify the disclosures of Cuccia and Eyer et al.?

> As stated in the present application, beginning at page 1, line 9: "Currently, digital signals carrying programming, such as video/audio/data programming, are supplied to consumers from different providers in respectively different formats, called protocols. For example, direct satellite system (DSS) signals are formatted in a proprietary format owned by DirecTV, and all signals carrying programming supplied via DSS satellites are

formatted using that protocol. Similarly, local terrestrial high definition television (HDTV) signals are formatted according to a standard initially proposed by the Advanced Television Standards Committee (ATSC) ----- and all signals carrying HDTV programming are formatted using that standard protocol.

Consumers will want to receive digital signals of these and any other protocols through which digital signals carrying programming is carried. Currently, this requires separate decoders, each embodied in a separate enclosure --- for each desired protocol. This is expensive, etc.----" .

Neither this prior art problem of a need to use separate decoders for different transport protocols, such as the protocols associated with HDTV and DirecTV, nor any solution for this problem are mentioned or suggested by the cited references. The Examiner is mistaken in concluding that different transmission "paths" described in the cited references is the same thing as, or even mandates a need for, use of different transport protocols. Thus, whether an HDTV signal is transmitted over a satellite broadcast "path" or a terrestrial broadcast "path" (or a cable "path", for that matter), the ATSC transport protocol can be employed.

Neither cited reference mentions processing signals arranged according to the ATSC transport protocol. Eyer et al. mentions the "ATSC Standard" at col. 10, lines 57 et seq. but only in connection with "a syntax for a virtual channel record" such as would be required for grouping channels for tuning in an order out of normal numerical sequence as Eyer et al. discloses. Eyer et al. does not relate ATSC to "digital terrestrial broadcasts" as indicated by the Examiner or to any particular different transport protocol as referred to in the rejected claims.

The term "DBS" (i.e., Direct Broadcast Satellite) used by Eyer et al. does not relate to or define a particular transport protocol but rather is a generic reference to digital broadcasts via satellite making use of undefined transport protocols. This terminology is not synonomous with "DSS" (Direct Satellite System) which is a proprietary transport protocol used by the

DirecTV Company.

The Examiner has attempted to employ Applicant's recognition of a problem relating to a need to provide different, separate decoders to process different transport protocols as the required suggestion or motivation to modify references (Cuccia and/or Eyer) which neither disclose nor solve the problem. Furthermore, neither of these references suggests any combination or modification which addresses that problem.

C. The Combination of Cuccia and Eyer et al.

At page 5, paragraph 10 of the Final Rejection, the Examiner states:

"Eyer discloses digital satellite broadcasts (---- DBS) and digital terrestrial broadcasts (---ATSC) ". But, as noted above, Eyer does not refer to ATSC in connection with digital terrestrial broadcasts. The Examiner concludes, without any logical basis:

> "Therefore, it would be obvious to one skilled in the art at the time the invention was made to have different transport protocols in the invention of Cuccia in view of Eyer—".

But this would render Cuccia inoperative since he has a decoder which can only decode one type of transport protocol (MPEG-2).

A modification which renders a reference ineffective for its intended purpose cannot be the basis for establishing a *prima facie* case of obviousness.

The § 103a Rejection of Claim 3 is Not Supported

In addition to the deficiencies noted above in the Examiner's attempt to show that independent claim 1 (as well as similarly worded claims 10 – 12) are obvious, the rejection of claim 3 lacks a showing of other elements of the claim language.

The rejected dependent claim 3 and independent claim 10 are distinguished over the cited art in the same manner as set forth with respect to independent claim 1 above and, in addition, include the following elements:

Claim 3:

"wherein the protocol decoder comprises a processor, responsive to a first control program for processing the packets from the first packet stream source to extract the respective payloads, a second control program for processing the packets from the second packet stream source to extract the respective payloads, and a third control program for switching between the first control program and the second control program".

Claim 10:

"said protocol decoder further comprises a processor responsive to first, second and third control programs, the third control program is responsive to the select signal to switch to the first control program when the first packet stream source is coupled to the protocol decoder and to switch to the second control program when the second packet stream source is coupled to the protocol decoder".

The Examiner did not find any "first, second and third control programs, etc" as claimed above in either Cuccia or Eyer et al. but simply concluded (Final Rejection, page 5, line 7):

> "Further regarding claim 3 the protocol decoder is a processor (col. 7, lines 63 – 65) responsive to control programs for extracting payloads from respective transport streams. The protocol decoder inherently has a third control program for switching between the first control program and the second control program (col. 9, lines 33-42)".

There is nothing in the cited text of Eyer et al. to support the Examiner's reference to first, second and third control programs and that text merely refers to the standard processing of a single transport stream containing packetized data for a plurality of channels along with Packet ID (PID) or "channel" information. The PID allows the system to separate the data for a selected channel from the data for other channels that is contained in the single transport stream. This has nothing to do with control programs for

extracting payloads from transport streams having different transport protocols and does not anticipate or render obvious the elements of claims 3 and 10 quoted above.

Therefore, the rejection of claims 3 and 10 should be reversed for the foregoing reasons, in addition to those which have been pointed out for independent claim 1.

The § 103(a) Rejections of Claims 4 – 9 Are Traversed

Claims 4 – 9 were rejected as obvious over Cuccia in view of Eyer et al. and "AAPA" as applied to claim 3, and further in view of Yu (5,410,709).

The deficiencies pointed out above in connection with the rejection of claims 1 and 3, on which claims 4 – 9 are dependent, are repeated and relied upon here as well.

The § 103(a) Rejections of Dependent Apparatus Claims 4 – 9 Are Traversed

Dependent apparatus claims 4 – 9, which include all of the limitations of independent claim 1 and dependent claim 3, have been rejected as obvious with respect to Cuccia in view of Eyer et al. and "AAPA", and further, in view of Yu (U.S. 5410709).

With respect to apparatus claims 4 – 9, it has been demonstrated above that there is no valid basis for rejecting independent claim 1 or dependent claim 3 as being obvious in view of any combination of Cuccia in view of Eyer et al. or Cuccia in view of Eyer et al. plus "AAPA"

The Examiner acknowledges that the principal reference "Cuccia does not disclose that the packets have a first and second transport protocol" as required by all of the appealed claims, including claims 4 – 9 which depend from claim 1.

As pointed out above, Eyer et al. also does not disclose processing of packets having a first and a second transport protocol and, furthermore, it has been demonstrated that there is no basis for combining Cuccia and Eyer et al., even when taking into consideration Applicant's discussion of the ATSC and DSS transport protocols. In addition, it has been

shown that the added limitations of dependent claim 3, from which claims 4 – 9 are dependent, is neither shown nor suggested by either Cuccia or Eyer et al. For these reasons alone, the rejection of claims 4 – 9 should be reversed.

D. The Combination of Cuccia, Eyer et al., AAPA and Yu

As indicated above, claims 4 – 9 have been rejected as obvious compared to a combination of Cuccia and Eyer et al. and AAPA and Yu.

The Examiner states (Final Rejection, paragraph 11):

> "Regarding claims 4 – 9, Cuccia in view of Eyer et al. does not disclose that the first and second control programs comprise a packet handler, several interrupt drivers and an interrupt vector containing a pointer to an interrupt driver, and reallocating a buffer".

Despite all these admitted additional missing elements in the two principal references and the additional fact that Yu has nothing whatsoever to do with protocol decoders, the Examiner maintains in the Final Rejection that Yu is an appropriate reference under § 103.

Yu (col. 1, line 17) describes interrupt processing within a "hybrid" general purpose digital computing system where a number of central processing units operate under the control of different operating systems. The CPU's are capable of accessing all of the resources within the entire system. The Examiner relies on col. 4, line 67 through col. 5, line 15 to indicate what Yu discloses. That text reads as follows:

> " The dispatching function module 40-4 contains routines for dispatching interrupts received from controller channel control programs loaded into an XCP interrupt hardware register 14-1 included within XCP central processing unit 14. More specifically, the interrupt received by the XCP central processing unit 14 causes the referencing of one of 16 interrupt vectors from memory. The interrupt vector containing the channel number information is loaded into the register 14-1. The module 40-4 responds to the interrupt, obtains the matching channel number and invokes the corresponding driver interrupt handler routine. Both modules 40-2 and 40-4 operatively couple to the

> interrupt control table 42. The function processing module 40-2 accesses the table 42 to store and clear entries while module 40-4 accesses the table 42 in dispatching interrupts to the appropriate driver handler routines."

The Examiner takes the position that the foregoing text demonstrates that in Yu, "the control programs are chosen using a third control program" as indicated by the last six lines of the quotation above. The Examiner also concludes that "a buffer is reallocated" in Yu. Neither conclusion is believed to be supported by Yu. In addition, it is submitted that Yu relates to systems that are so different from those of the appealed claims that Yu could only be found by using hindsight and by using Appellant's claims as a roadmap, both of which are impermissible approaches to reaching a conclusion of non-obviousness (see above).

Finally, taking into account the substantial differences between claim 3 and the Cuccia and Eyer et al. references as pointed out above (and acknowledged at least in part by the Examiner), claims 4 – 9 are submitted to be non-obvious as compared to the prior art.

It is submitted that there is nothing in either Cuccia or Eyer et al. which would lead anyone to combine any teachings of those two references with Yu. It is submitted that the Examiner's suggested incomplete combination has only been arrived at as a result of Applicant's teachings and inappropriate use of hindsight.

No Prima Facie Case of Obviousness Exists Based on the Combination of the Cited Patents

The primary reference, Cuccia, has been acknowledged by the Examiner as lacking an element of independent Claims 1, and 10 - 12.

The Examiner has attempted to rely on the secondary patent of Eyer et al. to supply that missing claim element. However, the Examiner is not free to create such a combination in the absence of either motivation in the applied references to do so or a reasonable expectation of success. In view of the substantial lack of relevant teachings and disclosure in the Eyer et al. patent as pointed out above, one skilled in the art would not be aware that

there is any reason or basis to consider Cuccia and Eyer et al. together. Without such an awareness, the skilled artisan would not be motivated to modify the teachings of either of these patents.

It should be apparent that Eyer et al.is substantially different from the invention set forth in rejected claims of this application and Eyer et al. does not fill a gap which the Examiner has acknowledged.

According to the teachings and disclosure set forth in Eyer et al., the ordinary skilled artisan would not be motivated to modify the teachings of the Cuccia patent. Consequently, the Eyer et al. patent cannot provide a basis for a position that its disclosure provides the skilled artisan a motivation to add something to Cuccia which is not disclosed or suggested by Eyer et al. that would produce a useful, successful apparatus or method. Neither of the disclosures of the Cuccia or Eyer et al.patents acknowledges that there is any problem present in their systems which could be solved by any such combination.

The Examiner has attempted to combine information relating to a problem solved by Applicant's claimed invention (the AAPA) to modify and/or combine elements of Cuccia and Eyer et al. to produce a different combination of elements which is neither suggested nor disclosed by those references. No motivation or suggestion has been demonstrated for modifying these references to arrive at what is presently claimed. In fact, modifications proposed by the Examiner would render the combination of references inoperative.

With respect to the Examiner's attempt to combine Cuccia, Eyer et al. and AAPA with Yu, It is submitted that one skilled in the art would not be motivated to combine these teachings for any useful purpose. It is respectfully submitted that the suggested combination can be motivated, if at all, solely by hindsight reasoning guided by the appellant's own disclosure — reasoning that is expressly forbidden during the examination of a claim under § 103(a). In re Gorman, 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir. 1991); In re Fritch, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992). Accordingly, the rejection of each of claims 1 and 3 – 12 should be reversed.

Dependent Claims

The rejected, dependent claims 4 – 9 are also submitted to be patentable because each recites limitations to the invention recited in the claims 1 and 3 on which claims 4 – 9 are dependent. In re Fine, 5 U.S.P.Q.2d at 1600. Since no prima facie case of obviousness exists with respect to the independent claims, no prima facie case of obviousness exists with respect to any of the dependent claims.

In view of the foregoing, reconsideration and reversal of the rejection of all of the Claims 1 and 3 – 12 are respectfully requested.

CONCLUSION

For the foregoing reasons, Appellant submits there is no motivation for and no direct or indirect suggestion of Appellant's claimed combinations of apparatus elements in the cited references.

The proposition by the Examiner that the prior art may be modified in the manner suggested by the Examiner to produce the Appellant's claimed arrangements does not make the modifications obvious unless the prior art suggests the desirability of the modification. Additionally, the case of Panduit Corp. v. Dennison Mfg Co., 774 F. 2d 1082, 1095 (Fed. Cir. 1985), vacated, 475 U.S. 809 (1986), aff'd on remand, 810 F.2d 1561 (Fed. Cir. 1987), held that prior art references must be evaluated on what they taught or suggested...when the invention was made, not on hypothetical modifications or combinations to arrive at Appellant's claimed features relying on the hindsight benefit of Appellant's teaching, and there is no motivation in the references to suggest Appellant's claimed combination.

Accordingly, Appellant submits that the Examiner's rejection should be reversed as to Claims 1 and 3 – 12 and that the application should be held to be in condition for allowance.

Respectfully submitted,

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Signature: Patricia M. Fedorowycz **Date:** Oct. 10, 2007

Patricia M. Fedorowycz

APPENDIX I - APPEALED CLAIMS

WHAT IS CLAIMED IS:

1. An adaptive transport decoder, comprising:

a source of a first stream of packets, each including a payload, and having a first transport protocol;

a source of a second stream of packets, each including a payload, and having a second transport protocol, wherein said second transport protocol is different than said first transport protocol;

a protocol decoder, coupled to the first and second packet stream sources, for extracting the respective payloads from the packets from a selected one of the first and second packet stream sources; and

a selector, having respective input terminals coupled to the first and second packet stream sources, and an output terminal coupled to the protocol decoder, and responsive to a select signal for selectively coupling either one of the first and second packet stream sources to the protocol decoder.

2. (Canceled)

3. An adaptive transport decoder, according to claim 1

wherein the protocol decoder comprises a processor, responsive to a first control program for processing the packets from the first packet stream source to extract the respective payloads, a second control program for processing the packets from the second packet stream source to extract the respective payloads, and a third control program for switching between the first control program and the second control program.

4. The adaptive transport decoder of claim 3 wherein:

the processor includes a memory for storing the first, second and third programs; and each of the first and second control programs comprises:

a packet handler; executed in response to each received packet;

a plurality of interrupt drivers, stored in the memory at respective locations, called by software interrupt;

an interrupt vector, stored at a fixed, predetermined location in memory, including a plurality of entries, each containing a pointer to a respective location of an interrupt driver.

5. The adaptive transport decoder of claim 4 wherein:

the third control program switches between the first and second control programs by moving the interrupt vector of one of the first and second control programs to the fixed predetermined location in the memory, and simultaneously moving the interrupt vector of the other one of the first and second control programs to another location in the memory.

6. The adaptive transport decoder of claim 4

wherein each of the first and second control programs further comprises a buffer for storing the respective extracted payloads at a location in the memory.

7. The adaptive transport decoder of claim 6 wherein:

the third control program switches between the first and second control programs by moving the interrupt vector of one of the first and second control programs to the fixed predetermined location in the memory, and simultaneously moving the interrupt vector of the other one of the first and second control programs to another location in the memory; and.

reallocating the buffer to a location in the memory.

8. The adaptive transport decoder of claim 4 wherein:

the packet handler is an interrupt handler stored in the memory at a location; and

one of the entries in the interrupt vector points to the location of the packet handler.

9. The adaptive transport decoder of claim 8 wherein:

each of the first and second packet stream sources generates an interrupt request signal when a packet is available;

the entry in the interrupt vector pointing to the location of the packet handler is responsive to the interrupt signal from the selected packet stream source.

10. An adaptive transport decoder comprising:

a source of a first stream of packets, each including a payload, and having a first transport protocol;

a source of a second stream of packets, each including a payload, and having a second transport protocol, wherein said second transport protocol is different than said first transport protocol; and

a protocol decoder, coupled to the first and second packet stream sources, for extracting the respective payloads from the packets from a selected one of the first and second packet stream sources; and further comprising:

a selector, having respective input terminals coupled to the first and second packet stream sources, and an output terminal coupled to the protocol decoder, and responsive to a select signal for selectively coupling either one of the first and second packet stream sources to the protocol decoder; and wherein:

said protocol decoder further comprises a processor responsive to first, second and third control programs, the third control program is responsive to the select signal to switch to the first control program when the first packet stream source is coupled to the protocol decoder and to switch to the second control program when the second packet stream source is coupled to the protocol decoder.

11. An adaptive transport decoder comprising:

a source of a first stream of packets, each including a payload, and having a first transport protocol;

a source of a second stream of packets, each including a payload, and having a second transport protocol, wherein said second transport protocol is different than said first transport protocol;

a protocol decoder, coupled to the first and second packet stream sources, for extracting the respective payloads from the packets from a selected one of the first and second packet stream sources; and

a payload processor coupled to the protocol decoder for processing the respective payloads extracted from the packets from the selected packet stream source.

12. An adaptive transport decoder comprising:

a source of a first stream of packets, each including a payload, and having a first transport protocol;

a source of a second stream of packets, each including a payload, and having a second transport protocol, wherein said second transport protocol is different than said first transport protocol;

a protocol decoder, coupled to the first and second packet stream sources, for extracting the respective payloads from the packets from a selected one of the first and second packet stream sources;

a selector responsive to a select signal for selectively coupling either one of the first and second packet stream sources to the protocol decoder; and

each packet in the first and second packet streams further comprises a header containing information related to the payload;

the protocol decoder comprises a register for storing information from a header of a received packet; and

the protocol decoder accesses the register to obtain the information.

APPENDIX II - EVIDENCE

None submitted.

APPENDIX III - RELATED PROCEEDINGS

None.